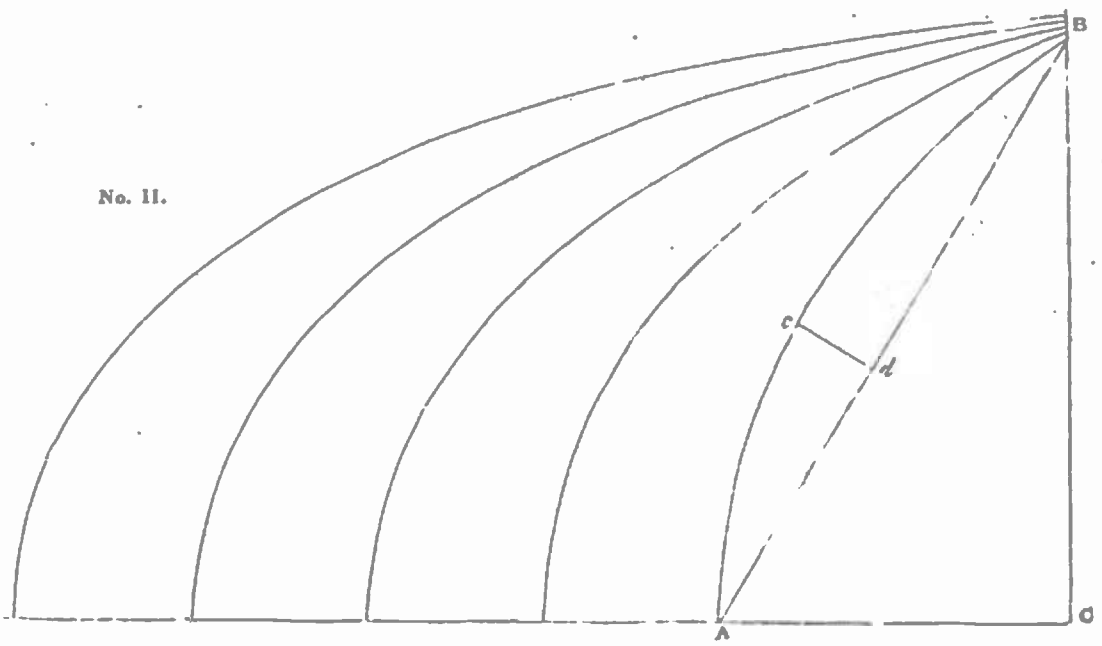
TUDOR ARCHES.

No. II.



TO THE EDITOR OF THE BUILDER.

SIR,—The lines given in THE BUILDER (p. 532) are tolerably accurate, but had your engraver known how to describe the lines on each side of the approximate one by simple continuous motion, he would, no doubt, have produced them finer. The different characters of these lines may be further shewn by dividing the distance A B and B C into any convenient number of equal parts, and drawing chord lines to each division. The versed sine of each on the middle or approximate line from A to B will be equal, and also those from C to D; but the latter will be much less than the former; while to the other lines the versed sine to each following division will be gradually different.

If the "septenary system" were fully illustrated it would be shewn:

First, as in the example referred to, that a line may be described by simple continuous motion, beginning at A with a *finite* radius of curvature, and, while constantly changing, rise to a given point, C, and have there also, although increased, still a *finite* radius of curvature; intermediately bowing out more or less than in the example at B.

Second. A line may be described to pass from *finite* radius at A to *infinite* radius at C; bowing out more or less.

Third. A line may pass from *infinite* radius at A to *infinite* radius at C, to any given height and opening; also bowing out more or less.

For practical purposes, it will be seen by the examples given that lines of the first character may be drawn sufficiently nearly parallel to each other.

Of these characters of lines there are several motions, which might regulate a plasterer's mould in running the mouldings of an arch.

To my remarks on the line formed by the common mode of drawing a Tudor arch, after the word "while it is too flat immediately above B," I beg to add; it is too quick as it approaches to C. This, in general, in such arches is very apparent, especially when executed.

Example No. II. contains a series of arches with different openings, rising nearly to the same height. They could as easily have been drawn exactly to the same height, but it was considered that each line would appear more distinct with a little difference. A chord, A B, is drawn to one arch, to explain that the versed line, *c d*, or greatest distance from the chord line, may be in different positions between A and B, as well as that the curve may bow out, more or less, between A and B, while at A a tangent to the curve is perpendicular to A C.

Perhaps some of your contributors will try to produce such a gradation, or fill in a few lines between any two that will as perfectly harmonize with them as these lines do with each other.

JOSEPH JOPLING.

29, Wimpole-street, 30th Oct. 1844.

SIR,—There is no doubt that Mr. Jopling's lines for an arch of uninterrupted curvature are correct, and that the lines from double centres do not give a curve of equation; in large arches, such as bridges, vaults, &c., architects have therefore adopted the elliptic and parabolic curves in lieu of the double centred, but in Tudor architecture, and in designs of Gothic work, it is very doubtful whether the use of curves of the higher order lead to the true exposition of the style.

In the particular instance alluded to by Mr. Jopling, the curves delineated from the double centre and from the ellipsis nearly coincide, but there are many cases wherein an arch is very much depressed, or is very acute, to which the principles of the ellipsis will not apply, and certainly cannot afford a ready and quick means of solving the query of your correspondent, "how to draw a Tudor arch through three given points?"

For illustration of my opinion, that curves of the higher order are not conducive to the true exposition of Gothic architecture, I would refer to the system of groining adopted by the Gothic architects. It would be presumptuous to assert that these masters were not acquainted with the art of projecting from the original curves by ordinates, the diagonal and other intermediate ribs thereby producing elliptic lines; but it appears evident that such was not *their practice*, though it was the system upon the revival of the style adopted by some modern practitioners: and to a mathematical mind it might at first appear to be the correct one; Professor Willis, however, in his interesting paper published in the "Transactions of British Architects" (who, by the by, are most indebted to non-professionals for their best papers), shews that this idea of the system is an error, and that the lines of these diagonal and intermediate ribs are segments of circles, producing by their variety of curve that play of light and shade which is lost in modern groining, where a correct mathematical uniformity is preserved.

There are three interesting chapters in the work of Philibert de L'Orme, who lived and wrote at a time when the practice of Gothic architecture could not have been wholly forgotten, and who expressly says that he derived his information relative thereto from the old masons. He states that the intermediate ribs of Gothic groining (which he calls "*liernes, formerets*, and *tiercerons*") must follow the sweep of the compass, from which the principal branches of the vault are delineated—"*suivant la circonférence du compas après lequel auront esté tirées les brâches des voutes.* His illustrations also shew this principle, and though in the other parts of his stereometry he freely makes use of ordinates, in this case he uses segments of circles.

I am, however, trenching upon new ground; my only intention was to shew that the old Freemasonic architects thought of effects other than those produced by complex mathematical lines, and that an arch struck from four centres may have points of preference over elliptic or parabolic curves.

I am, Sir, yours, &c.

T. L.

PUBLIC PARK AT HULL.

THE Mayor of Hull has within the last few days received the following letter from her Majesty's Woods and Forests in answer to an application made for a portion of the grant of public money set apart to aid in the formation of public walks:—

"Office of Woods, &c., Oct. 21, 1844.

"Sir,—I have, on the part of the Commissioners of her Majesty's Woods, &c., to inform you that they some time since had referred to them by the Board of Treasury for their opinion thereon, the memorial of yourself and other inhabitants of Hull, praying that some portion of the grant of public money, for the formation of walks, &c., near populous towns, may be appropriated towards the improvement of Spring Bank, for the benefit of the inhabitants of Hull; and that having caused a survey to be made of the spot in question by their surveyor for the district, they feel inclined, from the report which he has made to them on the subject, to recommend a grant of money towards the proposed improvement; but as they understand that Spring Bank is not of sufficient extent to meet the wants of the inhabitants, many of whom are desirous of having a park formed in the neighbourhood of Hull, to which Spring Bank would be the principal approach, I have to request that you will inform the Board whether there is any probability of that project being carried into effect, and what steps are being taken for the purpose; as if so, they would be disposed to recommend a larger grant than they would feel warranted in doing if the improvement of Spring Bank is limited to that spot alone, without any view to further improvements.

"I am, Sir, your most obedient servant,

"CHARLES GORE."

W. B. Carrick, Esq., Mayor of Hull.